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EXAMINER	
DHINGRA, RAKESH KUMAR	
ART UNIT	**PAPER NUMBER**
1763	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/619,731	RENKEN, WAYNE GLENN	
	Examiner	Art Unit	
	Rakesh K. Dhingra	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-15,18-22 and 26-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-15,18-22 and 26-35* is/are rejected.

7)☒ Claim(s) *23-25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 October 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

Applicant's arguments filed 10/5/2005 regarding Figures 6-8 have been fully considered but they are not persuasive because these drawings do not show the opening and closing of SPC 100 by the mechanical assembly 102 which is also claimed in claim 26. As earlier indicated in the first office action dated 6/8/05, Figures 6-8 show only the upper temperature control element heating element 124 connected and actuated by the mechanical assembly 102 and do not depict any linkage with the lower temperature control element 132 or the lower enclosure 134. To this extent Figures 6-8 do not show details claimed in the invention in terms of MPEP 608.02(d). It is presumed that this explanation will enable the applicant to amend the drawings or provide an appropriate response to this objection.

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not). As per applicant's response dated 10/5/05 (page 17)- Claims 23-25 are cancelled, but these claims are not shown as such in the list of claims.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Following claims are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention since as per disclosure as explained below:

1) Claim 3 recites the limitation "where the proximity pins are movable" that is not in line with disclosure. Paragraph 0029 reads about proximity pins 133 but does not indicate that these pins 133 are movable. Further paragraph 0036 reads about upper proximity pins 125 and indicates as "extending upper proximity pins 125" that could be read as "fixed extending upper proximity pins 125". Therefore, for the purpose of examination on merits the limitation "wherein the proximity pins are movable" has been interpreted to include movability of pins together with the temperature controlled plates.

2) Claim 5 recites limitation "flow distribution manifold comprises a plurality of laminar flow paths, each of the plurality of laminar flow paths comprising one laminar flow element" is not supported by relevant paragraph of specification (Paragraph 0032) that reads "distribution channels 116 each have a feed passage 117 and a laminar flow passage 118". Therefore, for the purpose of examination on merits the limitation "plurality of laminar flow paths, each of the plurality of ----------one laminar flow element" is interpreted to mean "plurality of flow paths that have laminar flow passage".

3) Claim 30 recites limitation "An apparatus that controls the temperature and environment of a wafer" is not supported by the disclosure regarding control of environment. The invention is understood to be about control of wafer temperature only.

Accordingly for the purpose of examination on merits this limitation is interpreted as " An apparatus that controls the temperature of a wafer".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3, 4, 18, 26-29 are rejected under 35 U.S.C. 103 (a) as being unpatentable over admitted prior art in view of Akimoto et al (US Patent No. 6,097,005) and Hughes (US Patent No. 5,287,914).

Regarding Claims 1, 4: Admitted prior art teaches an apparatus (Figures 1-3) for varying the temperature of a wafer comprising:

a first temperature controlled plate 32, the first temperature controlled plate comprising first proximity pins 34, the first proximity pins configured to distance the wafer from the first temperature controlled plate;

a shower head (flow distribution manifold) 24;

Admitted prior art also teach top and bottom enclosures 20, 40 and gas input 22 (Paragraphs 0010, 0011).

Admitted prior art does not teach a second temperature controlled plate comprising second proximity pins with the wafer located between the first and second temperature controlled plates.

Akimoto teaches an apparatus (Figure 1) that includes a main temperature controlling

Plate (cooling section 3) [first temperature controlled plate], an auxiliary cooling plate (second temperature controlled plate) 4 and where the wafer W is placed between these two plates. Akimoto also teaches that lift pins (proximity pins) 22 in the mounting table 21 (first temperature controlled plate) are used to maintain a desired spacing between wafer and the auxiliary cooling plate (second temperature controlled plate) [Column 3, lines 1-40].

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a second temperature controlled plate in the apparatus as taught by Akimoto in the apparatus of admitted prior art to increase temperature control efficiency of the substrate (Column 1, lines 35-55).

Admitted prior art in view of Akimoto does not teach second proximity pins.

Hughes teaches an apparatus (Figure 1) that comprises a substrate cooling station 1 which includes two temperature controlled heat sinks 3 facing the two opposite surfaces of substrate 10 and where two heat sink spacers (proximity pins) 2 are mounted to the heat sinks that ensure and maintain critical spacing between substrate and the heat sinks (Column 3, line 55 to Column 4, line 20).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use proximity pins with second temperature controlled plate as taught by Hughes in the apparatus of admitted prior art in view of Akimoto to eliminate risk of damage to wafers (Column 4, lines 5-20).

Regarding Claim 3: Akimoto teaches that lifting pins (proximity pins) 22 can raise/lower the wafer W with the help of mechanism 23, and further raising and lowering means 5 is

used as space adjusting means to move auxiliary plate (second temperature controlled plate) close to or away from wafer W, that is enables relative movement between the two temperature controlled plates (Akimoto - Column 3, lines 5-25). Further, Hughes also teaches that heat sink spacers (Proximity pins) 2 can be set to maintain critical spacing between substrate and heat sinks (includes varying distance between the two temperature controlled plates) [Column 3, lines 55- 65].

Regarding Claim 18: Admitted prior art in view of Akimoto and Hughes teach all limitations of the claim including that raising and lowering means 5 (Akimoto, Figure 1) is used as space adjusting means to move auxiliary plate (second temperature controlled plate) close to or away from wafer W, that is enables relative movement between the two temperature controlled plates (Column 3, lines 5-25). Further, Hughes also teaches that heat sink spacers (Proximity pins) 2 can be set to maintain critical spacing between substrate and heat sinks (includes varying distance between the two temperature controlled plates) [Column 3, lines 55- 65]. Thus distance between first and second temperature controlled plates can be varied using heat sink spacers 2 (Hughes) and by raising lowering means 5 (Akimoto) as per functional limitations. Further Akimoto also teaches that his invention is also applicable when the main temperature controlled plate 3 and the auxiliary plate 4 are heated plates (Column 7, lines 20-30).

Regarding Claims 26-29: Admitted prior art in view of Akimoto and Hughes teach all limitations of the claim including that system is operable to control the temperature of temperature controlled plates and the wafer by means of raising and lowering means 5

and temperature sensor 202 (Akimoto – Figures 1,2, 4 and Column 3, line 60 to Column 4, line 50).

Claims 5, 6, 10, 11, 19, 22, 30-32, 34, 35 are rejected under 35 U.S.C. 103 (a) as being unpatentable over admitted prior art in view of Akimoto et al (US Patent No. 6,097,005) and Hughes (US Patent No. 5,287,914) as applied to Claims 1, 4, 18 and further in view of Dhindsa et al (US patent No. 6,245,192).

Regarding Claim 5: Admitted prior art in view of Akimoto and Hughes teach all limitations of the claim except for details of flow distribution manifold.

Dhindsa et al teach a gas distribution apparatus 26 (Figures 2, 4) comprising temperature controlled support plate 20, baffle plates 56A, 56B and shower head 22 and plurality of laminar-flow paths comprising of laminar flow elements 70 controlling the flow rate of said flow path, the laminar flow element providing gas to gas passages 80, 82 and ultimately to openings 90 (not shown) in showerhead 22 that leads to the exterior of the flow distribution manifold (Column 4, line 60 to Column 6, line 55).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use gas distribution apparatus as taught by Dhindsa et al in the apparatus of admitted prior art in view of Akimoto and Hughes to obtain optimized gas distribution on the substrate (Column 2, lines 20-35).

Regarding Claim 6: Dhindsa et al teach (Figure 4) the laminar flow element 70 comprises a horizontal channel and the gas passage 82 and then through outlets 90 (in showerhead 22) extend to an opposing surface of the substrate (not shown) [Column 3, lines 55-60 and Column 4, line 60 to Column 6, line 55).

Regarding Claim 10: Dhindsa et al teaches (Figure 5) flow controllers MFC1, MFC2 to regulate flow of gas.

Regarding Claim 11: Admitted prior art in view of Akimoto, Hughes and Dhindsa et al and Or et al teach all limitations of the claim as explained above including that laminar flow path 70 extends in a plane parallel to the wafer surface (Dhindsa et al- Figure 4 and Column 3, lines 55-60).

Regarding Claim 19: Dhindsa et al teach that the gas distribution apparatus 26 (Figure 4, 5) comprises temperature controlled support plate 20, baffle plates 56A, 56B and shower head 22 with gas-passages 54 and Flow controllers MFC 1, MFC 2 to regulate gas flow rate through gas flow paths and provide uniform pressure across backside of showerhead (Column 6, lines 30-36).

Further, as per courts rulings (Case Law):

"" The motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have. *In re Newell* 13 USPQ 2d 1248, 1250 (Fed. Cir. 1989); *Fromson v. Advance Offset Plate* 225 USPQ 26, 31 (Fed. Cir. 1985); *In re Gyurik* 201 USPQ 552, 557 (CCPA 1979)."

Regarding Claims 22: Dhindsa et al teaches all limitations of the claim as explained above.

Regarding Claims 30-32, 34: Admitted prior art in view of Akimoto, Hughes and Dhindsa et al teach all limitations of the claims as explained above.

Regarding Claim 35: Akimoto teaches that rising time (speed of movement) of auxiliary cooling plate (upper temperature controlled plate) is controlled to achieve desired temperature profile (Column 4, lines 5-35).

Claim 7 is rejected under 35 U.S.C. 103 (a) as being unpatentable over admitted prior art in view of Akimoto et al (US Patent No. 6,097,005) and Hughes (US Patent No. 5,287,914) and Dhindsa (US patent No. 6,245,192) as applied to Claims 1, 5 and further in view of Nanyei et al (US Patent No. 5,580,830).

Admitted prior art in view of Akimoto, Hughes and Dhindsa et al teach all limitations of the claim except for laminar flow paths with cavity.

Nenyei et al teach an apparatus (Figures 1-3) that uses an insert 20 to create a restricted aperture 22 in the gas distribution system that reduces impurity concentration in the chamber. Nanyei et al further teach that impurities in the chamber are concentrated near aperture and there is little backflow of impurities to the chamber Nanyei et al also teach that the location of aperture can be selected as per process considerations (Column 3, lines 10-60).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use an aperture with desired location as taught by Nanyei et al in the apparatus Admitted prior art in view of Akimoto, Hughes and Dhindsa et al to control impurity concentration in the chamber (Column 4, lines 10-15).

In this connection courts have ruled (Case Law):

" The motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have. *In re Newell* 13 USPQ 2d 1248, 1250 (Fed. Cir. 1989); *Fromson v. Advance Offset Plate* 225 USPQ 26, 31 (Fed. Cir. 1985); *In re Gyurik* 201 USPQ 552, 557 (CCPA 1979).

Claims 8, 9, 12-15, 20, 21 are rejected under 35 U.S.C. 103 (a) as being unpatentable over admitted prior art in view of Akimoto (US Patent No. 6,097,005),

Hughes (US Patent No. 5,287,914) and Dhindsa et al et al (US Patent No 6,245,192) as applied to claims 1, 4, 5 above and further in view of Or et al (US Patent No. 6,364,949).

Regarding Claims 8, 9: Admitted prior art in view of Akimoto, Hughes and Dhindsa et al teach all limitations of the claim except for flow distribution manifold being in contact with first temperature controlled plate.

Or et al teach an apparatus (Figure 6) having a gas delivery assembly 149 with a temperature controlled plate 151 in thermal contact with showerhead 153 (flow distribution manifold). Or et al also teach that temperature controlled plate 151 includes gas inlet (flow channel) 159 through which gas flows to showerhead 153 and then to wafer 142 (Figure 4, Column 5, lines 60-68 and Column 6, lines 11-25).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a gas delivery assembly as taught by Or et al in the apparatus Admitted prior art in view of Akimoto, Hughes and Dhindsa et al to obtain minimum thermal gradient across wafer (Column 3, lines 10-15).

In this connection courts have ruled (Case Law):

" The motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have. *In re Newell* 13 USPQ 2d 1248, 1250 (Fed. Cir. 1989); *Fromson v. Advance Offset Plate* 225 USPQ 26, 31 (Fed. Cir. 1985); *In re Gyurik* 201 USPQ 552, 557 (CCPA 1979).

Regarding Claims 12, 13: Or et al teach an apparatus (Figure 6) having a gas delivery assembly 149 with a temperature controlled plate 151 in thermal contact with showerhead 153 (flow distribution manifold) to obtain minimum thermal gradient across

wafer (column 5, lines 60-65). Or et al also teach that temperature controlled plate 151 includes gas inlet 159 through which gas flows to showerhead 153 and then to wafer 142 (Column 6, lines 11-15). Or et al further teach that the apparatus has an exhaust system whereby reaction products are exhausted from chamber under the influence of negative pressure provided by a vacuum pump 255 (Figure 4 and column 9, lines 60-62 and column 5, lines 45-50).

Regarding Claim 14: Or et al teach that in the apparatus, the gas delivery assembly 149 includes temperature control plate 151 (Column 4, line 30-34).

Regarding Claim 15: Or et al teach that the gas distribution system and the temperature control element can be adjusted to different temperatures in order to vary the temperature gradient within the device (column 5, lines 64-68).

Regarding Claims 20, 21: Or et al teach that in the gas flow apparatus 149 (Figure 6) that the flow distribution manifold 153 is in thermal contact with the first heating plate 151 to obtain minimum thermal gradient across wafer (Column 5, lines 60-65). Or et al also teach that temperature controlled plate 151 includes gas inlet 159 through which gas flows to showerhead 153 and then to wafer 142 (Figure 4 and column 6, lines 11-15).

Claims 26-29 are rejected under 35 U.S.C. 103 (a) as being unpatentable over admitted prior art in view of Akimoto et al (US Patent No. 6,097,005) and Hughes (US Patent No. 5,287,914) as applied to Claims 1, 4, 18 and further in view of Liu et al (US patent No. 6,753,506).

Regarding Claim 26-28: Admitted prior art in view of Akimoto and Hughes teach all limitations of the claim except for enclosure operable to vary rate of closure or temp control of the temp altering devices.

Liu et al teach an apparatus (Figures 1, 2) that includes a process chamber 11 and heating envelope 13 that includes heating elements and a wafer 28 placed in a workpiece enclosure 32 with a lid 33 that can be closed or opened by a host computer that provides automatic control of processing cycle (Column 14, lines 3-18). Liu et al also teach that chamber wall 12 and chamber 11 can take various shapes and heating elements can be placed directly inside chamber (Column 7, lines 25-65).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use operation and control of wafer enclosure as taught by Liu et al in the apparatus per admitted prior art in view of Akimoto and Hughes to improve throughput.

Regarding Claim 29: Admitted prior art in view of Akimoto, Hughes and Liu et al, teach all limitations of the claim as explained above.

Claim 33 is rejected under 35 U.S.C. 103 (a) as being unpatentable over admitted prior art in view of Akimoto et al (US Patent No. 6,097,005), Hughes (US Patent No. 5,287,914) and Dhindsa et al (US Patent No. 6,245,192) and further in view of Okase (US Patent No. 5,592,581).

Admitted prior art in view of Akimoto, Hughes and Dhindsa et al teach all limitations of the claim except that upper and lower temperature controlled plates are resistively heated plates.

Okase teaches an apparatus (Figure 1) that includes a wafer 2 that is heated from both sides by planar resistive heating members 6 in a treatment chamber 1 (Column 3, lines 45-65).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use resistively heated temperature controlled plates for heating wafer as taught by Okase in the apparatus of Admitted prior art in view of Akimoto, Hughes and Dhindsa et al to enable heat the wafer quickly and with high repeatability (Column 2, lines 5-30).

Response to Arguments

Applicant's arguments with respect to claim 1-15, 18-22, 26-29 and 30-35 (new claims) have been considered but are moot in view of the new ground(s) of rejection as explained below:

1) Claims 1, 3: In view of claims being amended, new references by Akimoto (US Patent No. 6,097,005) and Hughes (US Patent No. 5,287,914) have been found that read on these claims which have therefore been rejected as explained above.

2) Claims 5: The claim has been amended by the Applicant by adding additional limitations into the claim "plurality of laminar flow paths ------flow distribution manifold". Further applicant has contended that no laminar flow paths are taught by Dhindsa et al ('192).

Examiner responds that Claim 5 recites limitation "plurality of laminar flow paths, each of the plurality of laminar flow paths comprising one laminar flow element" which is not supported by relevant paragraph of specification (Paragraph 0032), and that same

paragraph reads "distribution channels 116 each have a feed passage 117 and a laminar flow passage 118". Therefore as explained above under the paragraph "Claim rejections under 112", for the purpose of examination on merits the limitation "plurality of laminar flow paths, each of the plurality of ----------one laminar flow element" is interpreted to mean "plurality of flow paths that have laminar flow passage". Dhindsa et al teach laminar flow passages 70 in the flow distribution manifold. Accordingly claim 5 has been rejected as explained above.

3) Claims 6: The claim has been amended by the Applicant by adding additional limitations "horizontal channel formed in a surface of substrate" into the claim. Further applicant contends that Dhindsa et al do not teach any substrate.

Examiner responds that Dhindsa et al does teach substrate below the showerhead (Column 3, lines 55-60) and accordingly the claim has been rejected as explained above.

Claim 7: This claim has been amended by applicant. Further applicant contends that Nanyei does not teach cavity connected to flow path for collection of contaminants.

Examiner responds that Nanyei et al teach an aperture 22 in insert 20 to reduce impurity concentration in chamber 10 and that location of aperture can be selected as per process considerations. Accordingly claim has been rejected as expalined above.

Claims 8, 9: Applicant contends that the showerhead as taught by Or et al will not be suitable from size standpoint of gas delivery assembly and would be unsuitable to be combined with the structure of prior art and Blersch.

Examiner responds that Admitted prior art in view of Akimoto, Hughes, Dhindsa et al and Or et al does teach all the claim limitations. Further, as per courts rulings (Case Law):

"" The motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have. *In re Newell* 13 USPQ 2d 1248, 1250 (Fed. Cir. 1989); *Fromson v. Advance Offset Plate* 225 USPQ 26, 31 (Fed. Cir. 1985); *In re Gyurik* 201 USPQ 552, 557 (CCPA 1979)."

Thus claims 8, 9 have been rejected as explained above.

Claim 11: The claim has been amended by applicant. Further applicant contends that amended claim limitations " a second temperature controlled element and the laminar flow paths ----------parallel to plane of wafer" are not supported by Ohkase.

Examiner responds that Admitted prior art in view of Akimoto, Hughes and Dhindsa et al and Or et al teach all limitations of the claim including that laminar flow path 70 extends in a plane parallel to the wafer surface (Dhindsa et al- Figure 4 and Column 3, lines 55-60). Claim has been rejected as explained above.

Claims 12-15: Applicant contends that these claims are allowable in as much as depending upon independent claim 11 and for the same reasons as indicated by applicant for claim 11 viz, size of showerhead and other related dimensions in the apparatus of admitted prior art in view of Brors.

Examiner responds that Admitted prior art in view of Akimoto, Hughes, Dhindsa et al and Or et al does teach all the claim limitations. Further, as per courts rulings (Case Law):

"" The motivation to make a specific structure is always related to the properties or uses one skilled in the art would expect the structure to have. *In re Newell* 13 USPQ 2d 1248,

1250 (Fed. Cir. 1989); *Fromson v. Advance Offset Plate* 225 USPQ 26, 31 (Fed. Cir. 1985); *In re Gyurik* 201 USPQ 552, 557 (CCPA 1979)."

Thus claims 12-15 have been rejected as explained above.

Claim 18: The claim has been amended by applicant by adding limitation "first" and "the second heating --------when in open position". Further applicant contends that Ohkase as well as admitted prior art in view of Blersch do not teach limitations of this claim due to absence of pins on second heating plate.

Examiner contends that admitted prior art in view of Akimoto and Hughes teaches all limitations of the claim and accordingly claim has been rejected as explained above.

Claims 19, 22: Applicant contends that these claims should be allowable as being dependent on claim 18. Further applicant contends that motivation to combine reference of Dhindsa et al with Blersch is not clear due to reasons given under claims 12-15 above.

Examiner responds that limitations of claims 19, 22 are taught by admitted prior art in view of Akimoto, Hughes and Dhindsa et al and as per explanation given above under claims 12-15. Accordingly these claims have been rejected as explained above.

Claims 20, 21: Applicant contends that these claims should be allowable as being dependent on claim 18. Further applicant contends that Blersch does not show "gas passes from ----------to the wafer" and also Dhindsa et al does not show a heating plate.

Examiner responds that Dhindsa et al teach that gas flows from flow control system (baffle plates 56A, 56B in Figure 4) through passages 90 in showerhead 22 to the wafer (Column 3, lines 55, 60). Accordingly claims 20, 21 have been rejected per teachings of

admitted prior art in view of Akimoto, Hughes, Dhindsa et al, Or et al as explained above.

Claims 26-28: Applicant contends that claim 26 recites "an enclosure surrounding --------- the system operable to vary a rate of closure ---------temperature of wafer. Applicant further contends that Liu et al do not teach a structure that surrounds temperature modifying devices and a variable rate of closure of lid 33 and base 34 and fails to make a prima facie case of obviousness in combining this reference with admitted prior art in view of Blersch and the motivation to improve throughput is not understood. Applicant further states that claims 27-28, being dependent on claim 26 should also be allowed. Examiner responds that Liu et al teach an apparatus (Figures 1, 2) that includes a process chamber 11 and heating envelope 13 that includes heating elements and a wafer 28 placed in a workpiece enclosure 32 with a lid 33 that can be closed or opened by a host computer that provides automatic control of processing cycle (Column 14, lines 3-18). Liu et al also teach that chamber wall 12 and chamber 11 can take various shapes and heating elements can be placed directly inside chamber (Column 7, lines 25-65). Motivation in teaching of Liu et al regarding improvement of throughput is based on his teaching that by using reduced gas volumes the process time could be reduced leading to improved throughput (Column 3 lines 30-40). Examiner further states that teaching of Liu et al (as a concept) with those of admitted prior art in view of Blersch provide enough motivation for combining the teachings to achieve regulated and controlled heating cycle of wafers in the presence of process gases (Column 5, lines 1-

10). Thus claim 26 has been rejected as explained above along with dependent claims 27, 28.

Claim 29: Applicant contends that Liu et al do not teach varying rates of movement of first or second enclosing structures as per the claim limitation and that motivation to improve throughput is not understood.

Examiner responds that Liu et al teach automatic control of process in real-time that would obviously include control of rate of movement of opening/closing of wafer enclosure 32. Further motivation for improved throughput is already explained above under claim 26-28. Accordingly this claim is rejected as explained above.

New Claims 30-35: These have also been rejected as explained above.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rakesh K. Dhingra whose telephone number is (571)-272-5959. The examiner can normally be reached on 8:30 -6:00 (Monday - Friday). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571)-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rakesh K Dhingra

Parviz Hassanzadeh
Supervisory Patent Examiner
Art Unit 1763